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(Renewal for 990005-U)

Environmental & Regulatory Services Division
Bureau of Petroleum Products and Tanks
201 West Washington Avenue
P.O. Box 7837
Madison, WI 53707-7837

Wisconsin COMM 10 Material Approval

Equipment: Simmons SIR 5.7 L.M. Statistical Inventory Reconciliation System

Manufacturer: The Simmons Corporation
106 East Main St.
Richardson, TX 75081

Expiration of Approval: December 31, 2009

SCOPE OF EVALUATION

The Simmons SIR 5.7 L.M. Statistical Inventory Reconciliation System, manufactured by The Simmons Corporation, for leak detection of tanks and connected piping, has been evaluated for use as a method of monthly monitoring complying with **ss. COMM 10.61 (8) and 10.615 (3)** of the current edition of the Wisconsin Flammable and Combustible Liquids Code.

This evaluation summary is condensed to provide the specific installation, application and operation parameters necessary to maintain the subject systems in compliance with the Wisconsin Administrative Code – Comm 10.

DESCRIPTION AND USE

The Simmons SIR 5.7 System L.M. is a quantitative method that analyzes tank inventory records to detect leaks. The method estimates the leak rate and interprets the data as one of the following: tight, a leak indicated, results inconclusive, or results unusable.

The SIR system is capable of identifying and/or compensating for:

- Leak Rates (Identified and Quantified)
- Delivery Errors (Identify only)
- Unexplained Gains Or Losses (Identify only)
- Dispensing Meter Errors
- Calibration Errors
- Dipstick or Gauging Errors (Identify only)
- Conversion Chart Miscalibration
- Water Inflow Or Outflow (Identify only)
- Thermal Effects

Inventory data may be recorded manually or by use of an electronic or other tank monitor. Data that must be reported for leak detection analysis include:

- Measurement of product height and /or associated volume conversions for the days the tanks are in active operation.
- Deliveries or amount of product transferred to the tank by date and amount.
- A record of the amount of product dispensed from the tank system during each day of active use.
- Temperature of the product in the tank. (optional)

Leaks from either the tank or piping will show as losses. If a leak is indicated, the leak could be located in any portion of the tank system, including piping. Additional testing will be needed to isolate the location of the leak.

Inventory data may be recorded manually, hand-entered into a computer, entered directly from an ATG, entered via a modem, entered remotely with a personal computer, or determined using the WILCO™ System. The WILCO System uses an electronic stick to transmit product and water level information to a receiver which is tied by a phone line to the Simmons Corporation.

The facility may be closed for one or more consecutive days during the week, but the inventory record under analysis must contain data from a minimum of 27 days of active use of the facility. Properly calibrated meters are required for use of the SIR system. This method is inadequate if there is an insufficient number of usable records or too much daily variability in the inventory records.

The Simmons SIR 5.7 System L.M. system may be used with gasoline, diesel fuel, and other liquids with known coefficients of expansion and density after consultation with the manufacturer.

TESTS AND RESULTS

The performance of the Simmons SIR 5.7 L.M. System was determined in accordance with the EPA protocol for statistical inventory reconciliation methods. The system was found capable of detecting a 0.10- gph leak with a probability of detection of 99.0 percent and a probability of false alarm of 1.0 percent. The leak declaration threshold is a statistically significant product loss at the .01 level of significance.

SIR REPORT OUTPUT

Detailed here is an example of the typical report provided by Simmons to the SIR customer:

Summary Report

SIR Provider: **Simmons**
106 E. Main
Richardson, TX 75081
Contact: Customer Service
Phone: (800) 848-8378
Company: **SAMPLE CONVENIENCE STORE, INC.**

Customer BatchNumber: 64494

Product	Simmons ID	Customer ID	From	To	Call	Status
TFG #10001			**1980 Walnut Street**			
			Garland		**TX 75042**	
No Lead	WXYZAAA1	000102	12/02/04	12/31/04	NO REPORTABLE LOSS	[PASS]
Su No Lead	WXYZAAA2	000103	12/02/04	12/31/04	NO REPORTABLE LOSS	[PASS]
Unlead +	WXYZAAA3	000105	12/02/04	12/31/04	NO REPORTABLE LOSS	[PASS]
No Lead	WXYZAAA4	000106	12/02/04	12/31/04	NO REPORTABLE LOSS	[PASS]
TFG # 10002			**1251 Panther Street**			
			Garland		**TX 75040**	
No Lead	WXYZAAB1	000202	12/01/04	12/31/04	NO REPORTABLE LOSS	[PASS]
Su No Lead	WXYZAAB2	000203	12/01/04	12/31/04	NO REPORTABLE LOSS	[PASS]

FOR THIS BATCH

NR #	NR %	LOSS #	LOSS %	OP #	OP %	GAIN #	GAIN %	TOTAL TANKS #	TOTAL ALERTS #	TOTAL ALERTS %
6	100.00	0	0.00	0	0.00	0	0.00	6	0	0.00

106 East Main Street
Richardson, TX 75081

LIMITATIONS / CONDITIONS OF APPROVAL

- All monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer instructions, and verified every 12 months for operability, proper operating condition, and proper calibration by a certified technician. Records of sampling, testing, or monitoring shall be maintained in accordance with **Comm 10.625**.

- The manufacturer shall submit for a revision to this Wisconsin Material Approval application if any of the functional performance capabilities of this equipment are revised. This would include, but not be limited to changes in software, hardware, or methodology.

- While 3rd party testing does determine a required minimum tank level, EPA leak detection regulations require testing of the portion of the tank system which routinely contains product. Consistent testing at low levels could allow a leak to remain undetected.

  During leak testing, a minimum level of product in tank shall be maintained so as to ensure testing of the portion of the tank and/or piping that routinely contains product, regardless of testing system capability. For instance, if product levels are routinely maintained at 60%, but the leak detection system is capable of testing at 15% product level, then testing shall be performed at 60% levels.

- Critical performance parameters for the **Simmons SIR 5.7 L.M. System** (0.20 gph monthly monitoring):

Parameter	Value
Maximum Tank Size[1]	**60,000 gallons** (Single Tank) **60,000 gallons** (Manifolded Tanks)
Maximum No. of Manifolded Tanks	**5**
Minimum number of days for analysis	**27**

1: Manifolded tank capacity is an aggregate capacity of all tanks (maximum of five tanks).

- The Simmons SIR 5.7 L.M. System may be used as a method of monthly monitoring for tanks and connected piping complying with **ss. COMM 10.61 (8) and 10.615 (3).**

- **Mechanical or electronic line leak detectors capable of detecting, at a minimum, a leak rate of 3.0 gph at 10 psi within one hour, shall be installed in the piping system to detect catastrophic failures per Comm 10.615(1).**

- If for two consecutive months, the test results indicate that a tank system is not tight (fails), or the results are inconclusive (to be considered a fail), the suspected release investigation and confirmation procedures specified under **ss. COMM 10.63 and 10.64** shall be followed.

- If a second test is required to confirm the status of a tank system, that test shall be an approved tightness test in accordance with **ss. COMM 10.635 (2)(a).**

This approval will be valid through December 31, 2009, unless manufacturing modifications are made to the product or a re-examination is deemed necessary by the department. The Wisconsin Material Approval Number must be provided when plans that include this product are submitted for review.

DISCLAIMER

The Department is in no way endorsing or advertising this product. This approval addresses only the specified applications for the product and does not waive any code requirement unless specified in this document.

Effective Date: January 1, 2005

Reviewed by: _____

Greg Bareta, P. E.
Engineering Consultant
Bureau of Petroleum Products and Tanks

Approved by: _____ Date: _____